Issue #1
Shoreline Stabilization Policies

Fourth Draft: September 2, 1998

Existing Conditions:

The original issue was listed as bulkheads, but the term "shoreline stabilization" is more inclusive and also covers other shoreline modifications, such as riprap and seawalls. Shoreline stabilization also includes nonstructural erosion control measures, such as bioengineering, so it is useful to write guidelines around this larger topic, encouraging soft stabilization approaches as preferable to engineered structures.

WAC 173-16-060(11) notes that bulkheads **may** be detrimental to beaches and provides some general policies that bulkheads **should** be located and constructed in a manner that does not result in adverse impacts to nearby beaches, minimizes alterations to the shoreline, minimizes damage to fish and shellfish habitats, and blends into the surroundings aesthetically. The WAC also states that the construction of bulkheads **should** be permitted only where they provide protection to upland areas or facilities, not for the purpose of landfilling.

Deficiencies:

While bulkhead provisions are some of the most specific policies in the current WAC, they have not prevented cumulative impacts of new, mostly residential, bulkheads and shoreline armoring. Over the years, the construction of bulkheads has led to the loss of shoreline habitat, both upland and nearshore, increased beach erosion and obstructed natural sedimentation processes, exacerbated wave reflection, and degraded public recreational resources and habitats. The photos provided by regional Dept. of Ecology offices document the problem. The problem seems to arise from the tension between the need to protect property in specific cases and the larger objective of protecting the natural environment from individual and cumulative impacts. In many cases local governments need more helpful and specific guidance regarding under what conditions bulkheads are allowed, design methods to reduce impacts, and techniques to avoid cumulative impacts. Since the current WAC was written, much has been learned about the science of coastal erosion and soft shoreline stabilization techniques. The new WAC **should** incorporate these ideas. Discussions in commission and small group meetings have noted that the guidelines must recognize the different conditions in urban and residential/rural shorelines while still pursuing improved environmental conditions for continuous shoreline systems.

Conceptual Approach:

Broad Principle: In order to protect the natural shoreline functions, discourage the use of structured (engineered) shoreline stabilization measures, such as bulkheads and riprap.

a. For undeveloped and residential shorelines, do not permit structured shoreline stabilization except to protect existing structures and preferred uses. Allow no speculative shoreline modification (shoreline stabilization measure without an associated use) in anticipation of future development.

b. Use the softest, least intrusive shoreline stabilization technique practical for the situation and intended use. For example, encourage bioengineering over structured solutions. Acknowledge that other solutions **may** be necessary in developed and urban settings.

c. Do not allow shoreline stabilization where it can be reasonably avoided by setting proposed development back from the shoreline.

d. Use best available science in the preparation of SMP provisions for shoreline stabilization.

e. Where shoreline stabilization is necessary, require the mitigation of adverse impacts to the natural environment.

f. Develop more comprehensive strategies for urban environments where water-oriented uses are encouraged. Allow for the stabilization necessary to support such uses while pursuing the goal of enhancement of ecological functions.

Discuss how each of the policy directions above relates to new or significantly expanded structures, existing structures that require new shoreline stabilization, and maintenance, repair, or expansion of existing shoreline stabilization measures.

Direct local governments to consider shoreline stabilization principles in the planning of their shorelines, identifying those areas where shoreline stabilization measures **should** be prohibited or greatly restricted to avoid injury to natural processes and those areas where shoreline stabilization **may** be appropriate because of the potential for property damage and water-dependent uses.

Suggested Language:

Note: "**Shall**" means a mandate; the particular action must be done. "**Should**" means the particular action is required unless there is a compelling reason against it.

Section 060.1: Shoreline stabilization.

Definitions:

Altered shorelines: Those shorelines that have had their vegetation or shoreline configuration substantially changed in a manner that significantly modifies or reduces the shoreline's natural functions and values.

Developed shorelines: Those shoreline areas that are characterized by active uses or structures located within shoreline jurisdiction.

Mitigation: "Mitigation" means:

(1) Avoiding the impact altogether by not taking a certain actionor parts of an action;

***(2)** Minimizing impacts by limiting the degree or magnitude of the action and its implementation, by using appropriate technology, or by taling affirmative steps to avoid or reduce impacts;*

***(3)** Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;*

***(4)** Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action;*

***(5)** Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and/or*

***(6)** Monitoring the impact and taking appropriate corrective measures.*

Unaltered shorelines: Those shorelines that retain most of their native vegetation and natural shoreline configuration.

Undeveloped shorelines: Those shoreline areas that are relatively free of structures and use activities within shoreline jurisdiction.

a. *Applicability:* Shoreline stabilization includes actions taken to address erosion impacts to upland property and improvements caused or associated with current, flood, or wind or boat wake wave action. These actions include hard and soft structural and nonstructural methods, including but not limited to, bulkheads, riprap, jetties, groins, bioengineering/vegetative management methods, and beach nourishment.

b. *Principles:* Shoreline master programs **shall** pursue the following principles.

   1. Pursue the general goal of more natural shoreline conditions that better support ecological shoreline functions while protecting existing legally permitted improvements and accommodating the needs of water-oriented uses.
   2. For unaltered shorelines and shorelines with predominantly residential uses, allow shoreline stabilization measures only where there is a demonstrated need to protect an existing or preferred use. Locate and design new improvements to avoid the need for shoreline stabilization except where the specific activity requires the direct proximity to the water. Do not allow shoreline stabilization where it can be

reasonably avoided by setting proposed development back from the shoreline. Always use the least environmentally damaging shoreline stabilization technique practical. For example, favor bioengineering over concrete bulkheads or seawalls.

3. For altered shorelines and where existing development patterns, priorities set by local plans and regulations, and/or the needs of water-oriented uses require shoreline stabilization, minimize the impacts of stabilization measures by (1) limiting the stabilization measures to the minimum necessary to accommodate the use and protect supporting facilities, (2) employing design techniques that restore as much as possible the natural functions of the shoreline, (3) mitigating the development according to SEPA, and (4) implementing a comprehensive strategy to upgrade the viability and continuity of ecological systems over time.
4. Where shoreline stabilization is necessary, require the mitigation of impacts to the natural environment.
5. Use best available science in the preparation of SMP provisions for shoreline stabilization, as described in section ___, in order to address issues such as incremental impacts and pursue increased viability and continuity of shoreline environments. Base shoreline master program provisions on an approach that considers and protects the natural functions and values of the shoreline ecology, including sediment migration, channel hydrology, and habitat, as well as responds to the needs of water-oriented uses.

c. *Planning process to address shoreline stabilization provisions:* Those local governments where shoreline erosion is a concern and where shoreline stabilization measures are permitted within the master program **shall** accomplish the following tasks during the preparation or amendment of their master program.

1. During the preparation of new or amended shoreline master program provisions, as described in section 040 of this chapter, secure base information or conduct an inventory or assessment of local shoreline conditions, in accordance with section 040.c.2 of this chapter, to identify the basic shoreline functions and values related to shoreline erosion, sediment drift, existing shoreline stabilization, and aquatic and terrestrial wildlife habitat. The level of detail and scope of the inventory will depend on local conditions and shoreline master program provisions. For example, if there are no major shoreline erosion concerns and substantial shoreline modification is not allowed by the shoreline master program, a visual or cartographic assessment **may** be sufficient. If there are significant sediment transportation systems, stream bed siltation problems, or the potential for cumulative impacts, then a scientific evaluation **may** be required to establish a base line for monitoring or impact analysis.
2. In the master program environment designation provisions and boundaries, identify the areas where shoreline stabilization measures **should** be prohibited or greatly restricted to avoid injury to natural functions, those areas where restoration of natural shoreline processes **should** be encouraged or required, and those areas where shoreline stabilization **may** be appropriate because of the potential for property damage or the needs of water-dependent uses.

maymay3. For those altered shoreline areas and areas where substantial water-oriented shoreline development is envisioned, determine a comprehensive strategy to increase the shoreline natural functions and values by measures such as:

- Identifying areas with the potential for shoreline restoration.
- Providing incentives for shoreline restoration.
- Requiring mitigation of development impacts that achieves a net gain in shoreline functions.
- Identifying conditions where off-site mitigation **may** be more beneficial to the overall ecology than site-by-site action.

4. Where there is a significant possibility that the cumulative impacts of individual shoreline stabilization projects could degrade the natural functions and values of the shoreline, conduct a cumulative impact analysis. If a comprehensive analysis of natural shoreline processes or a cumulative impact analysis is beyond the resources available to the local government, consult with the Department of Ecology and/or set regulations sufficient to insure that the potential cumulative impacts do not occur. In the absence of more specific information, the Washington Department of Ecology Materials on Coastal Erosion and the Shoreline Management Guidebook **should** be used as a basis for provisions.

d. *Standards:* Shoreline master programs **shall** adhere to the following policy standards:.

1. For all new or substantially expanded shoreline uses, activities, and structures in largely unaltered, , rural, and residential areas, the following applies: Shoreline stabilization **may** be permitted only to protect a water-dependent use, public access, restoration or enhancement of natural functions, or other use that achieves a public benefit and enhances the natural functions of the shoreline. Shoreline stabilization measures for new or substantially expanded uses **may** be permitted only where there is conclusive evidence, documented through a geotechnical analysis, that there is a physical need for the measure and that alternative approaches, such as use relocation, design, and non-structural methods, are impractical. All new development **shall** be located and designed to prevent or minimize the need for shoreline stabilization or flood protection work. Shoreline erosion control measures **should** be located, designed, and constructed to prevent damage to existing development.

   (Geotechnical report or analysis means a scientific study or evaluation that includes a description of the site geology, conclusions and recommendations regarding the effect of geologic conditions on the proposed development, the adequacy of the site to be developed, the impacts of the proposed development, alternative approaches to the proposed development, and measures to mitigate potential impacts of the proposed development.)

2. For all new or expanded shoreline stabilization measures to protect a legally permitted existing use or structure in largely unaltered, rural, and residential areas, shoreline stabilization **may** be permitted only after there is conclusive evidence that the use or structure is in immanent danger from shoreline erosion and the need for protection is documented by a geotechnical analysis or demonstrated through

severe or dangerous conditions. Normal sloughing or erosion of steep bluffs or shoreline erosion in itself, without a scientific or engineering analysis, is not demonstration of need. Shoreline stabilization and erosion control standards **shall** give a preference for permitting of erosion protection measures for residences occupied prior to January 1, 1992 where the erosion protection measure is designed to minimize harm to the natural environment.

3. For the repair or replacement of existing shoreline stabilization measures in largely undeveloped, rural, and residential areas, the existing stabilization measure **may** be replaced with another measure that increases the natural function or character of the shoreline. For example, a functioning bulkhead **may** be replaced with a bioengineered shoreline. The stabilization measure **may** be replaced if enhancement of the natural shoreline functions is also achieved. The stabilization measure **may** also be replaced if there is a need demonstrated for replacement and shoreline enhancement or reduction of the stabilization measure is found to be impractical.
4. Within developed areas and along altered shorelines, where water-oriented uses other than residential docks are envisioned, shoreline stabilization **shall may**be permitted only if necessary to accommodate or protect a water-oriented use or existing use, provided that the shoreline stabilization measure is limited to the minimum necessary to accommodate its intended purpose, all reasonable design techniques and siting options are used to minimize the impact on natural functions, and mitigation for impacts is addressed in accordance with the State Environmental Policy Act (SEPA). Shoreline stabilization measures to protect existing improvements **shall may**be permitted only after conclusive evidence is presented demonstrating a need for such improvements.
5. Shoreline stabilization measures **shall** be designed and constructed to minimize the negative impacts to the natural environment. Shoreline stabilization **shall** be accomplished with non-structural means, such as vegetative erosion control or structure setbacks, whenever technically practical. Where necessary shoreline stabilization causes unavoidable impacts to the shoreline environment, those impacts **shall** be mitigated so that the ecological functions and values of the shoreline (or overall viability of the natural shoreline environment) are not diminished.
6. Publicly financed or subsidized shoreline erosion control measures **should** not restrict public access to the shoreline and, where appropriate, **should** incorporate natural shoreline restoration and public access improvements into the project.
7. New erosion control measures on feeder bluffs or other actions that affect beach sediment-producing areas **shall** require mitigation to reduce adverse impacts to sediment conveyance systems. Shoreline master programs **should** address mitigation for the cumulative effects of shoreline erosion control diminishing delivery of eroded sediments. Where sediment conveyance systems cross jurisdictional boundaries, local governments **should** coordinate shoreline management efforts. If beach erosion is a problem, local governments **should** adopt master program provisions for a Beach Management District or other

institutional mechanism to provide comprehensive mitigation for the adverse impacts of erosion control measures.

8. When there are uncertainties regarding a project proposal, inadequate data on local geophysical conditions, potential effects on adjacent property, the potential for beach starvation, and the potential for scouring or damaging nearshore habitat areas, such concerns **shall** be addressed through provisions based on a scientific evaluation employing best available science.